CLAIMS

1. A method for uplink control information transmission, comprising:

determining, by a terminal device, multiple uplink control channel elements for transmitting target uplink control information, wherein the multiple uplink control channel elements are within a same target time unit in time domain, and each of the multiple uplink control channel elements is capable of independently transmitting uplink control information; and

transmitting, by the terminal device, in the target time unit, the target uplink control information to a network device through the multiple uplink control channel elements;

wherein the method further comprises:

determining, by the terminal device, a resource occupied by a first uplink control channel element in the multiple uplink control channel elements; and

determining, by the terminal device, resources occupied by the other uplink control channel elements, except the first uplink control channel element, in the multiple uplink control channel elements according to the resource occupied by the first uplink control channel element.

2. The method of claim 1, wherein a length of time-domain resources occupied by each of the uplink control channel elements is equal to a length of time-domain resources occupied by a number A of Orthogonal Frequency Division Multiplexing, OFDM, symbols, and a length of frequency-domain resources occupied by the uplink control channel element is equal to a length of frequency-domain resources occupied by a number B of Resource Blocks, RBs, both A and B being positive integers greater than or equal to 1.

3. The method of claim 1, further comprising:

determining, by the terminal device, at least one of a length of the time-domain resource or a length of the frequency-domain resources occupied by the uplink control channel elements according to signaling transmitted by the network device.

4. The method of any one of claims 1-3, wherein the maximum bit number of the uplink control information which can be transmitted by one uplink control channel element is N, and a value of N is set in one of the following manners:

the value of N is set to be 2;

the value of N is set to be equal to a preset maximum bit number of Acknowledgment, ACK/Negative Acknowledgment, NACK, information corresponding to downlink data transmitted in a time unit; and

the value of N is configured by the network device.

5. The method of any one of claims 1-4, wherein determining, by the terminal device, the multiple uplink control channel elements for transmitting the target uplink control information comprises:

receiving, by the terminal device, multiple pieces of downlink data, each of the multiple pieces of downlink data corresponding to independent ACK/NACK information, and the target uplink control information comprising the ACK/NACK information of the multiple pieces of downlink data; and

determining, by the terminal device, for each of the multiple pieces of downlink data, one or more corresponding uplink control channel elements, to obtain the multiple uplink control channel elements.

6. The method of claim 5, wherein each of the multiple pieces of downlink data corresponds to at least one of the multiple uplink control channel elements; and

each of the multiple uplink control channel elements is configured to transmit the ACK/NACK information of the downlink data corresponding to the uplink control channel element.

7. The method of any one of claims 1-6, further comprising:

receiving, by the terminal device, indication information transmitted by the network device, the indication information comprising information for determining resources occupied by the multiple uplink control channel elements; and

determining, by the terminal device, the resources occupied by the multiple uplink control channel elements according to the indication information.

8. The method of claim 7, wherein the indication information is Downlink Control Information, DCI.

9. The method of claim 1, wherein the resources occupied by the other uplink control channel elements are at least partially the same as the resource occupied by the first uplink control channel element.

10. The method of any one of claims 7-9, wherein the resource occupied by an uplink control channel element comprises at least one of a time-domain resource, a frequency-domain resource, or a code-domain resource.

11. The method of any one of claims 1-10, wherein the multiple uplink control channel elements are used to repeatedly transmit the target uplink control information.

12. The method of any one of claims 1-10, wherein the multiple uplink control channel elements are used together to transmit the target uplink control information, and different uplink control channel elements in the multiple uplink control channel elements are used to transmit different information in the target uplink control information.

13. The method of any one of claims 1-12, wherein the time unit is a time slot.

14. A terminal device, comprising:

a first determination module, configured to determine multiple uplink control channel elements for transmitting target uplink control information, wherein the multiple uplink control channel elements are within a same target time unit in time domain, and each of the multiple uplink control channel elements is capable of independently transmitting uplink control information; and

a transmitting module, configured to transmit, in the target time unit, the target uplink control information to a network device through the multiple uplink control channel elements;

wherein the terminal device further comprises:

a sixth determination module, configured to determine a resource occupied by

a first uplink control channel element in the multiple uplink control channel elements; and

a seventh determination module, configured to determine resources occupied by the other uplink control channel elements, except the first uplink control channel element, in the multiple uplink control channel elements according to the resource occupied by the first uplink control channel element.

15. The terminal device of claim 14, wherein a length of time-domain resources occupied by each of the uplink control channel elements is equal to a length of time-domain resources occupied by a number A of Orthogonal Frequency Division Multiplexing, OFDM, symbols, and a length of frequency-domain resources occupied by the uplink control channel element is equal to a length of frequency-domain resources occupied by A number B of Resource Blocks, RBs, both of A and B being positive integers greater than or equal to 1.

16. The terminal device of claim 14, further comprising:

a third determination module, configured to determine at least one of a length of the time-domain resource or a length of the frequency-domain resources occupied by the uplink control channel elements.

17. The terminal device of any one of claims 14-16, wherein the maximum bit number of the uplink control information which can be transmitted by one uplink control channel element is N, and a value of N is set in one of the following manners:

setting the value of N to be 2;

the value of N is set to be equal to a preset maximum bit number of Acknowledgment, ACK/Negative Acknowledgment, NACK, information corresponding to downlink data transmitted in a time unit; and

the value of N is configured by the network device.

18. The terminal device of any one of claims 14-17, wherein the first determination module is specifically configured to:

receive multiple pieces of downlink data, each of the multiple pieces of downlink data corresponding to independent ACK/NACK information, and the target

uplink control information comprising the ACK/NACK information of the multiple pieces of downlink data, and

for each of the multiple pieces of downlink data, determine one or more corresponding uplink control channel elements, to obtain the multiple uplink control channel elements.

19. The terminal device of claim 18, wherein each of the multiple pieces of downlink data corresponds to at least one of the multiple uplink control channel elements; and

each of the multiple uplink control channel elements is configured to transmit the ACK/NACK information of the downlink data corresponding to the uplink control channel element.

20. The terminal device of any one of claims 14-19, further comprising:

a first receiving module, configured to receive indication information transmitted by the network device, the indication information comprising information for determining resources occupied by the multiple uplink control channel elements; and

a fifth determination module, configured to determine the resources occupied by the multiple uplink control channel elements according to the indication information.

21. The terminal device of claim 20, wherein the indication information is Downlink Control Information, DCI.

22. The terminal device of claim 14, wherein the resources occupied by the other uplink control channel elements are at least partially the same as the resource occupied by the first uplink control channel element.

23. The terminal device of any one of claims 20-22, wherein the resource occupied by an uplink control channel element comprises at least one of a time-domain resource, a frequency-domain resource, or a code-domain resource.

24. The terminal device of any one of claims 14-23, wherein the multiple uplink

control channel elements are used to repeatedly transmit the target uplink control information.

25. The terminal device of any one of claims 14-24, wherein the multiple uplink control channel elements are used together to transmit the target uplink control information, and different uplink control channel elements in the multiple uplink control channel elements are used to transmit different information in the target uplink control information.

26. The terminal device of any one of claims 14-25, wherein the time unit is a time slot.